

Protocol Description

1. Communication Command Frame Format

1.1 Command Format

Frame Head		Destination Address	Data Length	Command Word	Data	Checksum
0x55	0xAA	1Byte	1Byte	1Byte	data 1 ~ data N	1Byte

1.2 Response Format

This is the same as the command format, but the destination address needs to change to the source address, and the command word is the command word for the back of the host.

1.3 Relay Button Control Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	Relay Number (1byte)	Relay Value (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x02	0x00	Relay Number	Relay Value	Checksum

Return Value(data): 00 is success ; 01 is fail

Example: The host sends the device to control the number 1 relay to on or off:

55 AA 01 02 00 01 01 04 relay 1 off

55 AA 01 02 00 01 00 03 relay 1 on

Note: 1) Relay Number: 0x01-0x08. 2) Relay Values: 0x01 is closed, 0x00 is open.

1.4 Get Relay state Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x00	0x01	Checksum

Example: Read the work state of the device Command Format: 55 AA 01 00 01 01

Get relay status The return value (data) 07 (eight bits) of the relay's number, each of the 0 represents an open, 1 is closed, 07 indicates that the first three relays are close.

1.5 Changing Network Information Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	IP Address(4byte)				Gateway Address (4byte)				...
0x55	0xAA	addr	0x0E	0x02	ipAddr1	ipAddr2	ipAddr3	ipAddr4	gatewayAddr1	gatewayAddr2	gatewayAddr3	gatewayAddr4	...

...	Subnet Mask Address(4byte)				Server Port Number(2byte)		CheckSum
...	netMaskAddr1	netMaskAddr2	netMaskAddr3	netMaskAddr4	Hige 8 bytes of the Port Number	Low 8 bytes of the Port Number	CheckSum

Example: The device's IP address is: 192.168.0.10, port 2000. If you want to change this IP: 192.168.1.11, the gateway: 192.168.1.1, subnet mask 255.255.255.0, port number is 2000.

Then Command Format is as follows:

55 AA 01 0E 02 C0 A8 01 0A C0 A8 01 01 FF FF FF 00 07 D0 C1

(55AA010E02C0A8010AC0A80101FFFFFF0007D0C1)

Return Values:

00 Success

01 Failed

- 1) IP address: ipAddr1:ipAddr2:ipAddr3:ipAddr3.
- 2) gateway: gatewayAddr1:gatewayAddr2:gatewayAddr3:gatewayAddr4
- 3) subnet mask: netmaskAddr1:netmaskAddr2:netmaskAddr3:netmaskAddr4

1.6 Get Network Information Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	CheckSum (1byte)
0x55	0xAA	addr	0x00	0x03	CheckSum

Return data Commend Format (data):

IP Address(4 bytes)				Gateway (4 bytes)				...
ipAddr1	ipAddr2	ipAddr3	ipAddr4	gatewayAddr1	gatewayAddr2	gatewayAddr3	gatewayAddr4	...

...	Subnet mask (4 bytes)				Server port number (2 bytes)	
...	netmaskAddr1	netmaskAddr2	netmaskAddr3	netmaskAddr4	Hige 8 bytes of the Port Number	Low 8 bytes of the Port Number

- 1) IP Address: ipAddr1: ipAddr2: ipAddr3: ipAddr3

2) Gateway: gatewayAddr1: gatewayAddr2: gatewayAddr3: gatewayAddr4

3)subnet mask: netmaskAddr1: netmaskAddr2: netmaskAddr3: netmaskAddr4

1.7 Set Name Command Format(not much than 32 bytes)

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	Name ASCII (bytes<=32)	CheckSum (1byte)
0x55	0xAA	addr	Name length	0x05	Name ASCII	CheckSum

Return Values:

00 Success

01 Failed

If set name is DFRobot then the Name ASCII is 44 46 52 6F 62 6F 74 00

Do not forget the last 00!

1.8 Query Name Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	CheckSum (1byte)
0x55	0xAA	addr	0x00	0x07	CheckSum

If the name is DFRobot then the Name ASCII is 44 46 52 6F 62 6F 74 00

The last 00 is important

1.9 Query version number Command Format

Frame Head (2byte)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	CheckSum (1byte)
0x55	0xAA	addr	0x00	0x07	CheckSum

If the version is V1.0 then the return value (data) is 56 31 2E 30 00.

1.10 Change the Baudrate Command Format

Frame Head (2bytes)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	BaudRate (4bytes)	CheckSum (1byte)
0x55	0xAA	addr	0x04	0x08	The baud rate(big endian)	CheckSum

E.g. set the baud rate to 115200 should be sent 55 AA 01 04 08 00 01 C2 00
CF(55AA0104080001C200CF)

Return value (data): 00 success, 01 failure

The support of the baud rate is 256000, 128000, 115200, 57600, 38400, 28800,19200, 14400,
9600, 4800, 2400, 1200

1.11 Change RS485 Address Command Format

Frame Head (2bytes)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	485 Address (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x01	0x09	0-255(0xAB is not available)	Checksum

If the RS485 device original address is 01 and new address is 02, then the command should be sent: 55 AA 01 01 09 02 0C

Return value (data): 00 success, 01 failure

1.12 Set DHCP(ON OR OFF)Command Format

Frame Head (2bytes)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	ON OR OFF (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x01	0x0A	1/0	Checksum

Return value (data): 00 success, 01 failure

1.13 Query DHCP Command Format

Frame Head (2bytes)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x00	0x0B	Checksum

Return value (data): 00 success, 01 failure

1.14 Restart Command Format

Frame Head (2bytes)		Destination Address (1byte)	Data Length (1byte)	Command Word (1byte)	Checksum (1byte)
0x55	0xAA	addr	0x00	0x04	Checksum

Return value (data): 00 success, 01 failure

2. JSON Communication Format

(JSON format only supports network port analysis, USB port and RS485 interface does not support this format):

*Set relay state (on is open, off is closed).

Example Send Correct Command:

```
{"relay1":"on","relay2":"off","relay3":"off","relay4":"on","relay5":"on",
```

relay6": "on", "relay7": "off", "relay8": "off"}

Return: {"resp": "ok"}

Send Error command:

{"relay1": "off", "relay2": "off", "relay3": "off", "relay4": "off", "relay5": "off",
"relay6": "off", "relay7": "off", "relay9": "off"}

Return: {"resp": "error"}

*Get Relay Status

Example Send : {"get": "relayStatus"}

Return :

{"relay1": "off", "relay2": "off", "relay3": "off", "relay4": "off", "relay5": "off",
"relay6": "off", "relay7": "off", "relay8": "off"}

*Set Device Name

Example

Send : {"name": "DFRobot"}

Return: {"resp": "ok"}

*Get Device Name

Example Send : {"get": "name"}

Return: {"name": "DFRobot"}

*Set Up Network Configuration Information

Example Send :

{"ipaddr": "192.168.1.10", "gateway": "192.168.1.1", "netmask": "255.255.2
55.0", "port": "2000"}

Return: {"resp":"ok"}

*Get Network Configuration Information

Example

Send : {"get":"netconfig"}

Return :

{"ipaddr":"192.168.1.10","gateway":"192.168.1.1","netmask":"255.255.255.0","port":"2000"}

*Get version

Example

Send : {"get":"version"}

Return: {"version":"V1.0"}

*Set RS485 Address

Example Send: {"RS485addr":"22"}

Set RS485 address to 22, take effect immediately

Return: : {"resp":"ok"} Success {"resp":"error"} Failure

*Get RS485 Address

Example Send : {"get":"RS485addr"}

Return: If the RS485 address is 25, then return {"RS485addr":"25"}

*Set the BaudRate

Example Send : {"baudrate":"9600"} Set the baud rate of 9600, restart effect

Return: : {"resp":"ok"} Success {"resp":"error"} Failure

*Get the BaudRate

Example Send : {"get":"baudrate"}

Return: If the baud rate is 115200,then return {"baudrate":"115200"}

*Set DHCP State

Example Send :

{"dhcp":"on"} Open dhcp {"dhcp":"off"} Close dhcp

Return: : {"resp":"ok"} Success {"resp":"error"} Failure

*Get DHCP state

Example Send : {"get":"dhcp"}

Return {"dhcp":"on"} DHCP had Open {"dhcp":"off"} DHCP had
Close

*Restart {"reboot":"1"}

*Error command

Example Send : {"cmd":"test"}

Return: {"resp":"unsupported"}